

writers on infantile abnormalities and deformations, swaddling and general management of the new-born. Chapter II is taken up with an exhaustive survey of infant-nutrition and wet-nursing as expounded by Soranus, Pliny, Celsus and Oribasius. Chapter III, on digestive disorders, gives, among other things, 13 aphorisms from the pseudo-Hippocratic tract on teething, with the views of subsequent writers; Hippocrates, Galen, Aetius and Alexander of Tralles on intestinal worms, and the various remedies employed by the ancients for tape-worm, cholera infantum, infantile diarrhoea and constipation. The same general plan of selection and arrangement of telling material characterizes the subsequent chapters on diathetic and communicable diseases, affections of the respiratory, circulatory, urinary and nervous systems, diseases of the skin, ears and eyes, and infantile surgery. For ready reference, therefore, this pamphlet is the most practical and useful compend of the subject which has yet appeared. What seems dry in the handling becomes of little moment if the material is wanted for research purposes.

THE MODERN DANCE OF DEATH

The Modern Dance of Death. By Peyton Rous. The Linacre Lecture, 1929. 51 pp. 16°. Cambridge, University Press, 1929.

Written in flawless English of archaic sobriety, this thoughtful contribution of Dr. Rous is packed with meaning and not to be overlooked by those who would know the last word of experimental medicine on human and animal reactions to disease and their fatal terminations. Each sentence states a thought or an ascertained fact, and huge segments of recent investigation are summarized with almost algebraic brevity. It is a charming lay-sermon upon the multifarious albums of Holbein type, of which Dr. Warthin has made such an extraordinary collection. The more recent Dances of Death, Dr. Rous notes, particularly those of the post-bellum period, are grim, grisly, *gesucht traurig*, if you will, but nothing like as bitter, hopeless or

fatalistic as Holbein's original conception. Even the *Totentanz* which forms the terminal movement of Brahms' E-minor Symphony (*Thanatos Basileus*) is jocund, virile, exultant, exhilarating. The tremendous upward inflection of the initial eight measures of the *passacaglia* suggests Swinburne's dictum: "Nothing that produces a depressing effect is a true work of art." The *défi* at the end is the *défi* of Beethoven's last quartet (*Muss es sein? Es muss sein!*). To contrast with these moods the ineffable sadness of the *Dies irae* or the *Kyrie* in Bach's B Minor Mass is to realize our author's thesis that, however much they may lament the loss of their loved ones, real people of to-day no longer view their own end with apprehension or anticipatory horror. Something, no doubt, was learned from soldiers marching to their certain doom to the tune of Tipperary. Andreyeff's *Lazarus*, Tolstoi's *Ivan Ilyich*, Rachmaninoff's *Toteninsel* are archaisms. Shelley, Turgenieff, Baudelaire, Wagner, Browning, Bryant, Emerson, Whitman view death with equanimity. W. W. Keen even writes of "the cheerfulness of death," as the logical and physiological term and end of our sublunary existence. And the reason is not far to seek. "We live more than twice as long as did persons in Linacre's time, when to be an old man was well-nigh a profession in itself." We no longer die the deaths of others in thought, because we are too busily absorbed in our own extended span of existence, the length of days lost to our ancestors. Only the aged are concerned with prolonging life, as only the impotent and sterile are concerned about rejuvenation. We begin our Dance with Death before birth and it persists "from the womb to the tomb." Life is become less a battle and more like Mignon's blindfold dance among the eggs. As Sudhoff pointed out in his Johns Hopkins address, many diseases, which mowed down our ancestors like the scythe of the Grim Reaper, have now acquired an historical status as museum specimens. To indicate some limitations of this historic process is one object of Dr. Rous's lecture.

To begin with, there is no change in the ultimate pathology of mild or aborted diseases, and the sequelae of disease

to-day are oftentimes those to which the shorter-lived people of the past were not exposed. "Abortive attacks differ from typical ones mainly in the extent and severity of the lesions, not in their intrinsic character." Hyperimmunizations and anaphylaxis become negligible as sera are purified, but allergy is now known to play a large rôle in the ordinary manifestations of tuberculosis, syphilis and actinomycosis. Neoplasms yield to irradiation but cancer is still an indecipherable interaction between the body and rebellious growing tissue. The sequelae, if any, in anæmics healed by liver extract and diabetics preserved by insulin, are yet to materialize. "Insulin death as new pathology is very real." Beyond the fact that there is more of it and that more successful, surgery, so far, has only italicized what ordinary pathologic processes made plain, e.g., that myxœdema and tetany are due to thyroid and parathyroid insufficiency respectively. Chopping out tonsils, gall-bladders, ovaries, uteri as "prophylaxis" are fashions that spend themselves. Artificial lungs, livers and kidneys that will work inside the body are yet to be invented. Transplants atrophy and fail because the organs and their prospective hosts are found to have biological individualities, all their own, like human beings or the red cells of that "*ganz besonderer Saft*," their blood. Transplanted tumor cells survive "by aggression" only. Transplants, even within the species, are passive agents at the mercy of their bodily hosts, and cells of residual fragments of highly specialized organs will not ordinarily proliferate to reproduce the total structural arrangement, as with bone grafts. With the exception of the fragmentary liver, in which "reconstitution is functionally perfect," halved kidneys or lungs merely grow bigger, and even the new liver is a fragile mycelium, becoming like a blood clot in the end. Tissue regeneration, as in the thyroxinized cretin, is conditioned by "dormant potentialities," the nature of which we do not know. The liver, the suprarenals, the small intestines exist in proportions far in excess of functional needs, yet the 1/20 of adrenal cortex necessary to sustain life will atrophy through its incapacity to pro-

liferate. Physiological surgery has thus become a functional tester of prime importance in the matter of delimiting the biological potentialities of organs and tissues. Under the altered physiology producible by surgery, the organism merely reverts to well-worn pathways and never strikes into new ones. But this fact was already known to those initial exponents of "altered physiology," the pathologists. "For morbid anatomy is merely the footprint left by physiology." Every accessible organ has been tampered with, surgically and otherwise, from the days when prehistoric man punished the involuntary muscle of his intestines with indigestible foods, but nothing particularly new has transpired. In the witticism of O. W. Holmes, a guileless young thing will eat the proffered Hot-Cross Bun; an experienced, hard-boiled oldster will reject it. Acquired immunity is seen to be an expansile adaptation of the system to "menaces which increase by geometrical progression as the harmful micro-organisms divide." This is the only difficult adaptation to which the human frame has been subjected throughout historic time. By comparison, adaptations to heat, cold, atmospheric pressure, aeroplane and caisson life are so facile as to be negligible. Such potentialities of the organism as increase in size (of body and organs) *via* endocrine injections are perceived at once to be worse than worthless. Man's conquest of the communicable infections has been abrupt and comprehensive. The persistence of these diseases through his past was obviously due to his own inability to think. Gout and all the diseases due to overeating disappeared in famine-ridden areas during the World War and diabetes is seen to be a penalty of obesity. Most diseases, then, are adventitious as far as mere mind is concerned and should be quite within the control of advancing human reason. In other words, they are preventable in theory, but actually "occupational," with reference to a peculiar constitution occupied with functioning along predestined lines. Here, mind and body are seldom at one. Humanity at large, says Rous, is not isocephalic. Minds of mystic type will continue to be romantic and morbid, where rational-

ists conceive most diseases to be avoidable. The most fatal diseases to-day are no longer tubercle, syphilis, diphtheria, typhoid and infantile diarrhoea but heart disease, nephritis, apoplexy, cancer and pneumonia. When these shall have been conquered, the New Dance of Death will be that of the senile organism with diseases incident to a newer longevity, diseases which "had few targets in the past." When that millennium is reached, "the loud hymns of the physiologist in praise of the body will have died away." The search for an elixir of life will be as rabid as formerly, but Dr. Rous concludes that youth will be less inclined to "live dangerously" as to physical or moral health and the mind will eventually acquire its place in the sun. "The new science of living long and well will bring with it a science of dying, to supplement that most difficult of arts."

F. H. GARRISON.